

[illegible]

- trimethylen  
rther comp  
trimethyl

8. The propellant of claim 1, further comprising a plasticizer that comprises dioctyl adipate, or isodecyl pelargonate.

9. The propellant of claim 1, wherein the oxidizer comprises ammonium perchlorate and further comprises a plasticizer that comprises n-butyl nitrate, ethyl nitramine, trimethylol ethane trinitrate, triethyleneglycol dinitrate, dioctyl adipate, or isodecyl pelargonate wherein the propellant comprises about 4 weight % to about 10 weight % HTCE binder, about 65 weight % to about 86 weight % oxidizer, and about 5 weight % to about 12 weight % plasticizer.

10. The propellant of claim 1, further comprising an aluminum or boron metal fuel.

11. The propellant of claim 1, wherein the oxidizer comprises ammonium perchlorate, ammonium nitrate, ammonium dinitramide, cyclotrimethylene trinitramide, or cyclotetramethylene tetranitramine and further comprises an aluminum or boron metal fuel and a plasticizer that comprises trimethylol ethane trinitrate, triethyleneglycol dinitrate, dioctyl adipate, or isodecyl pelargonate wherein the propellant comprises about 4 weight % to about 10 weight % HTCE binder, about 45 weight % to about 75 weight % oxidizer, about 15 weight % to about 24 weight % metal fuel and about 5 weight % to about 12 weight % plasticizer.

12. A method of disposing of a solid rocket propellant, comprising the steps of:

- (a) contacting a propellant that comprises a hydroxy-terminated caprolactone ether binder and at least one or more solid compounds dispersed in the binder with a solution of capable of

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hydrolyzing the binder to form hydrolyzed caprolactone and poly(tetramethylene ether), and

(b) removing solids remaining in the solution after the binder hydrolyzes.

*Sub B1*  
13. The method of claim 12, wherein ~~the~~ solids are be recovered and recycled.

14. The method of claim 12, wherein the hydrolyzed caprolactone and the poly(tetramethylene ether)-binder ingredients are recovered and recycled.

*Sub B2*  
15. The method of claim 12, wherein the oxidizer comprises ammonium nitrate, ammonium dinitramide, cyclotrimethylene trinitramide, or cyclotetramethylene tetranitramine and further comprises a plasticizer that comprises n-butyl nitrateoethyl nitramine, trimethylol ethane trinitrate, or triethyleneglycol dinitrate, wherein the propellant comprises about 4 weight % to about 10 weight % HTCE binder, about 45 weight % to about 75 weight % oxidizer, and about 6 weight % to about 18 weight % plasticizer.

16. The method of claim 12, wherein the oxidizer comprises ammonium perchlorate and further comprises a plasticizer that comprises n-butyl nitrateoethyl nitramine, trimethylol ethane trinitrate, triethyleneglycol dinitrate, dioctyl adipate, or isodecyl pelargonate wherein the propellant comprises about 4 weight % to about 10 weight % HTCE binder, about 65 weight % to about 86 weight % oxidizer, and about 5 weight % to about 12 weight % plasticizer.

17. The propellant of claim 12, wherein the oxidizer comprises ammonium perchlorate, ammonium nitrate, ammonium dinitramide, cyclotrimethylene trinitramide, or cyclotetramethylene tetranitramine and further comprises an

